

**A COMPARATIVE STUDY OF TRAUMATIC AND NON TRAUMATIC  
GASTROINTESTINAL PERFORATION IN PATIENTS ADMITTED IN**

**GENERAL SURGERY DEPARTMENT,**

**GRH, MADURAI**

**M.S. DEGREE EXAMINATION**

**BRANCH I - GENERAL SURGERY**

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**Department of General Surgery**

**MADURAI MEDICAL COLLEGE AND GOVT RAJAJI HOSPITAL**

**Madurai – 20**



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## **INTESTINAL PERFORATION:**

### **INTRODUCTION:**

Upper-bowel perforation can be described as either free or contained. Free perforation occurs when bowel contents spill freely into the abdominal cavity, causing diffuse peritonitis (e.g., duodenal or gastric perforation). Contained perforation occurs when a full-thickness hole is created by an ulcer, but free spillage is prevented because contiguous organs wall off the area (as occurs, for example, when a duodenal ulcer penetrates into the pancreas).

Lower-bowel perforation (e.g., in patients with acute diverticulitis or acute appendicitis) results in free intra peritoneal contamination.

Lau and Leow have indicated that perforated peptic ulcer was clinically recognized by 1799, but the first successful surgical management of gastric ulcer was by Ludwig Heusner in Germany in 1892. In 1894, Henry Percy Dean from London was the first surgeon to report successful repair of a perforated duodenal ulcer.

The physiologic effects of truncal vagotomy on acid secretion had been known since the early 19th century, and this approach was introduced to the treatment of chronic duodenal ulcer in the 1940s. The next development in the management of peptic ulcer disease was the introduction of high selective vagotomy in the late 1960s. However, neither of these approaches proved to be useful, and several postoperative complications, including high rates of ulcer recurrence, have limited their use. Currently, in patients with gastric perforation, simple closure of perforated ulcers is more commonly performed than is gastric resection.

During World War I, the mortality following isolated injuries of the small intestine and colon was approximately 66% and 59%, respectively. The possible reasons for the high mortality and morbidity rates at that time may have been related to the following factors:

- Knowledge in the area of bowel injuries and the pathophysiology changes triggered by such injuries was inadequate
- Clinical skills and diagnostic techniques that allow early detection of such injuries were lacking
- Intravenous saline solutions or blood transfusions were not used in the management of hypovolemia and hemodynamic changes of these patients
- No antibiotics were available
- Laparotomy was not recommended in abdominal injuries
- The technical maneuvers to assess bowel injuries and to mobilize ascending and descending colon were generally not recommended

During the early years of World War II, Ogilvie, a leading surgeon in the British Army, recommended colostomy for management of all colonic injuries. He reported a mortality rate of 53% for colonic injuries treated with colostomy, a rate similar to that observed during

World War I. Several reports clearly indicated that surgeons used colostomy during the Korean and Vietnam wars, particularly in the management of left colonic injuries. However, in civilian injuries, it has been reported that primary repair can be successfully used. By the end of 1980s, primary repair was considered to the management strategy of choice, and it has replaced the use of colostomies in the treatment of civilian patients in most hospitals

The present study deals with the etiology, clinical features, treatment Modalities and factors influencing the prognosis of Gastro intestinal perforations at Government Rajaji Hospital, Madurai Medical College, Madurai.

## **AIMS AND OBJECTIVE**

### **AIM**

- To study the prognosis of traumatic and non traumatic gastrointestinal perforation in GRH, Madurai.

### **OBJECTIVES**

- To derive conclusion about incidence, age and sex distribution, various etiology, clinical characteristics, different surgical techniques in the management.
- To study the factors influencing the outcome the patient.
- To study the mortality and morbidity of gastro intestinal perforation.
- To analyze the efficacy of scoring systems in predicting morbidity indicators such as SSIs, Return of bowel functions, Duration of ventilator support, Duration of hospital stay

## **STUDY DESIGN**

It is a prospective comparative study. All patients who admitted in GRH with **TRAUMATIC AND NON TRAUMATIC GASTRO INTESTINAL PERFORATIVE PERITONITIS** were subjected to this study.

### **PERIOD OF STUDY:**

1 YEAR (September 2017 – September 2018)

### **COLLABORATING DEPARTMENT:**

NONE

### **PLACE OF STUDY:**

Government Rajaji Hospital, Madurai.

### **SELECTION OF STUDY SUBJECTS:**

All patients diagnosed with gastro intestinal perforation with peritonitis due to traumatic and non traumatic causes.

**SAMPLE SIZE:**

100patients

**DATA COLLECTION:**

Data regarding demographic data, history, clinical examination, laboratory values.

**METHODS:**

Prospective comparative study

**ETHICAL CLEARANCE:**

Approved by the Institute of Ethical Committee, Madurai Medical College.

**CONSENT:**

Informed and written consent from all patients



**ANALYSIS:**

USING CHI SQUARE TEST-P value

**CONFLICT OF INTEREST:**

None

**FINANCIAL SUPPORT:** Nil from the institution

**ELIGIBILITY CRITERIA:****➤ INCLUSION CRITERIA:**

- All patients admitted to General surgery department with hollow viscus perforative peritonitis.
- Both traumatic (blunt and penetrating injury) and non traumatic causes.
- Patients willing for definitive surgery, giving consent for study.

**➤ EXCLUSION CRITERIA:**

- Patient who expired before definitive surgery.
- Not willing for definitive surgery
- Not willing for the study.

### CONCLUSION

- Gastro intestinal perforation more common in younger age group.
- Appendicular and meckel's diverticular perforations are more common in elderly age.
- Male predominance in gastro intestinal perforation.
- Smoker / alcoholic / NSAID are predisposing factor.
- Peptic ulcer disease complicated perforation more common in low socio economic status.
- Stab injury abdomen is the most common cause for traumatic gastro intestinal perforation.
- Duodenum and appendix is the most common site for non traumatic gastro intestinal perforation.
- Ileum and jejunum is the most common site for traumatic gastro intestinal perforation.
- Clinical examination and early diagnosis and management is the most important factor for Morbidity and mortality of the patient.
- Computed tomography and diagnostic peritoneal lavage is the gold standard for diagnosis of gastro intestinal perforation.
- Diagnostic laparoscopy decreases the incidence of negative laparotomy.

- Co morbidities increase the incidence of post operative wound complication.
- Simple with omental patch closure in the gastro intestinal perforation increases the patient outcome.
- Two layer closures in small bowel perforation is better outcome.
- Laparoscopic closure of the gastro intestinal perforation increases the patient outcome.
- Most common complication septicemia and wound infection.
- Cause of death septicemia and cardiac arrest.

## BIBLIOGRAPHY

1. Lau WY, Leow CK. History of perforated duodenal and gastric ulcers. *World J Surg.* 1997 Oct. 21(8):890-6. [\[Medline\]](#).
2. Sarath Chandra S, Kumar SS. Definitive or conservative surgery for perforated gastric ulcer?--An unresolved problem. *Int J Surg.* 2009 Apr. 7 (2):136-9. [\[Medline\]](#).
3. Goh H, Bourne R. Non-steroidal anti-inflammatory drugs and perforated diverticular disease: a case-control study. *Ann R Coll Surg Engl.* 2002 Mar. 84(2):93-6. [\[Medline\]](#). [\[Full Text\]](#).
4. Lee JF, Leow CK, Lau WY. Appendicitis in the elderly. *Aust N Z J Surg.* 2000 Aug. 70(8):593-6. [\[Medline\]](#).
5. Stapfer M, Selby RR, Stain SC, et al. Management of duodenal perforation after endoscopic retrograde cholangiopancreatography and sphincterotomy. *Ann Surg.* 2000 Aug. 232(2):191-8. [\[Medline\]](#). [\[Full Text\]](#).

6. Anderson ML, Pasha TM, Leighton JA. Endoscopic perforation of the colon: lessons from a 10-year study. *Am J Gastroenterol*. 2000 Dec. 95(12):3418-22. [\[Medline\]](#).
7. Iqbal CW, Cullinane DC, Schiller HJ, et al. Surgical management and outcomes of 165 colonoscopic perforations from a single institution. *Arch Surg*. 2008 Jul. 143(7):701-6; discussion 706-7. [\[Medline\]](#).
8. Teoh AY, Poon CM, Lee JF, et al. Outcomes and predictors of mortality and stoma formation in surgical management of colonoscopic perforations: a multicenter review. *Arch Surg*. 2009 Jan. 144(1):9-13. [\[Medline\]](#).
9. Namdar T, Raffel AM, Topp SA, et al. Complications and treatment of migrated biliary endoprotheses: a review of the literature. *World J Gastroenterol*. 2007 Oct 28. 13(40):5397-9. [\[Medline\]](#).
10. Wei SC, Tan YY, Weng MT, Lai LC, Hsiao JH, Chuang EY, et al. SLCO3A1, A novel crohn's disease-associated gene, regulates

nf- $\kappa$ B activity and associates with intestinal perforation. *PLoS One*. 2014. 9 (6):e100515. [[Medline](#)]. [[Full Text](#)].

11. Kim JB, Kim SH, Cho YK, Ahn SB, Jo YJ, Park YS, et al. A case of colon perforation due to enteropathy-associated T-cell lymphoma. *World J Gastroenterol*. 2013 Mar 21. 19(11):1841-4. [[Medline](#)]. [[Full Text](#)].

12. Cheung CP, Chiu HS, Chung CH. Small bowel perforation after radiotherapy for cervical carcinoma. *Hong Kong Med J*. 2003 Dec. 9(6):461-3. [[Medline](#)].

13. Deniz K, Ozseker HS, Balas S, et al. Intestinal involvement in Wegener's granulomatosis. *J Gastrointest Liver Dis*. 2007 Sep. 16(3):329-31. [[Medline](#)]. [[Full Text](#)].

14. Catena F, Ansaloni L, Gazzotti F, et al. Gastrointestinal perforations following kidney transplantation. *Transplant Proc*. 2008 Jul-Aug. 40(6):1895-6. [[Medline](#)].

15. Butler J, Martin B. Towards evidence based emergency medicine: best BETs from the Manchester Royal Infirmary.

Detection of pneumoperitoneum on erect chest radiograph. *Emerg Med J*. 2002 Jan. 19(1):46-7. [\[Medline\]](#). [\[Full Text\]](#).

16. Langell JT, Mulvihill SJ. Gastrointestinal perforation and the acute abdomen. *Med Clin North Am*. 2008 May. 92(3):599-625, viii-ix. [\[Medline\]](#).
17. Kim JH, Ahn HD, Kwon KA, Kim YJ, Chung JW, Park DK, et al. Spontaneous healing of gastric perforation after endoscopic ligation for gastric varices. *J Korean Med Sci*. 2013 Apr. 28(4):624-7. [\[Medline\]](#). [\[Full Text\]](#).
18. Crofts TJ, Park KG, Steele RJ. A randomized trial of nonoperative treatment for perforated peptic ulcer. *N Engl J Med*. 1989 Apr 13. 320(15):970-3. [\[Medline\]](#).
19. Donovan AJ, Berne TV, Donovan JA. Perforated duodenal ulcer: an alternative therapeutic plan. *Arch Surg*. 1998 Nov. 133(11):1166-71. [\[Medline\]](#). [\[Full Text\]](#).

20. Solomkin J, Evans D, Slepavicius A, Lee P, Marsh A, Tsai L, et al. Assessing the Efficacy and Safety of Eravacycline vs. Ertapenem in Complicated Intra-abdominal Infections in the Investigating Gram-Negative Infections Treated With Eravacycline (IGNITE 1) Trial: A Randomized Clinical Trial. *JAMA Surg.* 2017 Mar 1. 152 (3):224-232. [[Medline](#)].
21. Kim J, Lee GJ, Baek JH, Lee WS. Comparison of the surgical outcomes of laparoscopic versus open surgery for colon perforation during colonoscopy. *Ann Surg Treat Res.* 2014 Sep. 87(3):139-43. [[Medline](#)]. [[Full Text](#)].
22. Ritz JP, Lehmann KS, Frericks B, Stroux A, Buhr HJ, Holmer C. Outcome of patients with acute sigmoid diverticulitis: Multivariate analysis of risk factors for free perforation. *Surgery.* 2011 May. 149(5):606-13. [[Medline](#)].